23387

IN THE U.S. PATENT AND TRADEMARK OFFICE

Inventor	Hendrik DOHLE et al	
Patent App.	10/553,574	
Filed	29 August 2006	Conf. No. 1571
For	CATHODE FOR A DIRECT METHANOL FUEL CELL AND METHOD FOR ...	
Art Unit	1795	Examiner Scully, S

Hon. Commissioner of Patents
Box 1450
Alexandria, VA 22313-1450

Appealed 22-Jan-09

REPLY BRIEF UNDER 37 CFR 41.41

Now come appellants by their duly authorized attorney and submit their reply brief under the provisions of 37 CFR 41.41.

There is a mistake in the rejection. Namely:

In section 1 the examiner states "Regarding claims 4 and 8, Kosako discloses an electrolyte membrane electrode assembly for a fuel cell, which comprises an anode, a cathode, and an electrolyte, comprising an anode-side catalyst layer (94) and a cathode-side catalyst layer (96) provided on both sides of a polymer electrolyte membrane (91)... The cathode-side diffusion layer has projections (99)..."

This language refers to FIG. 12B which is the only figure in the cited reference using reference numerals 94, 96, and 99.

This rejection from the Examiner's Answer was taken virtually verbatim from the final action of 10 October 2008. It is the only rejection of claims 4 and 8.

This rejection was objected to in the response to that Final Action and in the Appeal Brief as referring to a prior-art structure that Kosako admitted was inoperative. The Examiner's Answer goes on to say in section (10) that "The rejection above ... does not discuss Figure 12B." This must be in reference to the rejection of claims 5 and 7, not the rejection of claims 4 and 8 since the rejection of claims 4 and 8 refers only to structure shown in FIG. 12B.

Thus the argument against the final-action rejection of claims 4 and 8 stands unopposed. The rejection of claims 4 and 8 is incorrect in that it is based on a part of the prior art admitted to be inoperative. Claims 4 and 8 therefore are clearly patentable as there is no other rejection of them.

If claims 4 and 8 can be rejected on FIGS. 1A and 1B of Kosako '155, that is a new rejection and can only be made in an office action, not in an Examiner's Answer. Just as an applicant cannot make a new argument in an Appeal Brief, and examiner cannot make a new rejection in an Examiner's Answer.

Going further, a set of proposed claims, transmitted herewith, was submitted to the examiner in charge of this case on 1

June 2009, with the understanding that they made the case allowable.

Finally the argument of the examiner about the changed language of the claims resulting in withdrawal of the original finding of allowable subject matter is specious. The statement that "bound directly on the free cathode compartment" is different from "bounding a free cathode compartment" is not understood, as the first statement is clearly a clumsy translation but carries the same general meaning as the second one. Claim 2, accurately translated reads:

2. A low-temperature fuel cell according to claim 1 to 2 wherein the catalyst layer of the cathode directly bounds the free cathode space.

It is clear that this case is in a confused state, probably the result of the change in examiners. The argument against the rejection of claims 4 and 8 is unopposed and agreed-upon allowable subject matter has been ignored.

In fairness, prosecution should be reopened and a new first action issued to clarify the situation. Alternately a new Examiner's Answer should be submitted that explains how the

existing rejection of claims 4 and 8 based on the structure of FIG. 12B of Kosako cited in this rejection is valid.

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PROPOSED AMENDED CLAIMS

3. (previously presented) The low-temperature fuel cell according to claim 8 in which the diffusion layer of the cathode is composed of an ion-conducting material.

4. (currently amended) A method of operating a low-temperature fuel cell with

an anode,

a cathode <u>comprising</u>

<u>a diffusion layer and</u>

<u>a catalyst layer on the diffusion layer and bounding a free cathode compartment, and</u>

an electrolyte membrane directly engaging the diffusion layer and arranged [[there]] between the cathode and the anode ~~, the cathode comprising a diffusion layer engaging directly against the membrane and a catalyst layer on the diffusion layer and bounding a free cathode compartment~~ , the method comprising the steps of:

causing protons produced at the anode to travel through the electrolyte membrane and then through the diffusion layer of the cathode to the catalyst layer, and

supplying oxygen via the free cathode compartment directly to the catalyst layer.

5. (previously presented) The method according to claim 4 in which methanol or a methanol water mixture is supplied as a fuel.

6. (previously presented) The method according to claim 4 in which the oxygen is supplied as pure oxygen or as atmospheric oxygen.

7. (previously presented) The method according to claim 4, further comprising the step of:

directly discharging water produced at the catalyst layer of the cathode through the free cathode compartment.

8. (previously presented) A low-temperature fuel cell comprising:

an anode;

a cathode;

an electrolyte membrane between the anode and the cathode;

a diffusion layer forming a face of the cathode and engaging directly against the electrolyte membrane; and

a catalyst layer forming an opposite face of the cathode, turned away from the anode, and bounding a free cathode compartment.

9. (previously presented) The low-temperature fuel cell defined in claim 8 wherein the diffusion layer is composed of a proton-conducting material.